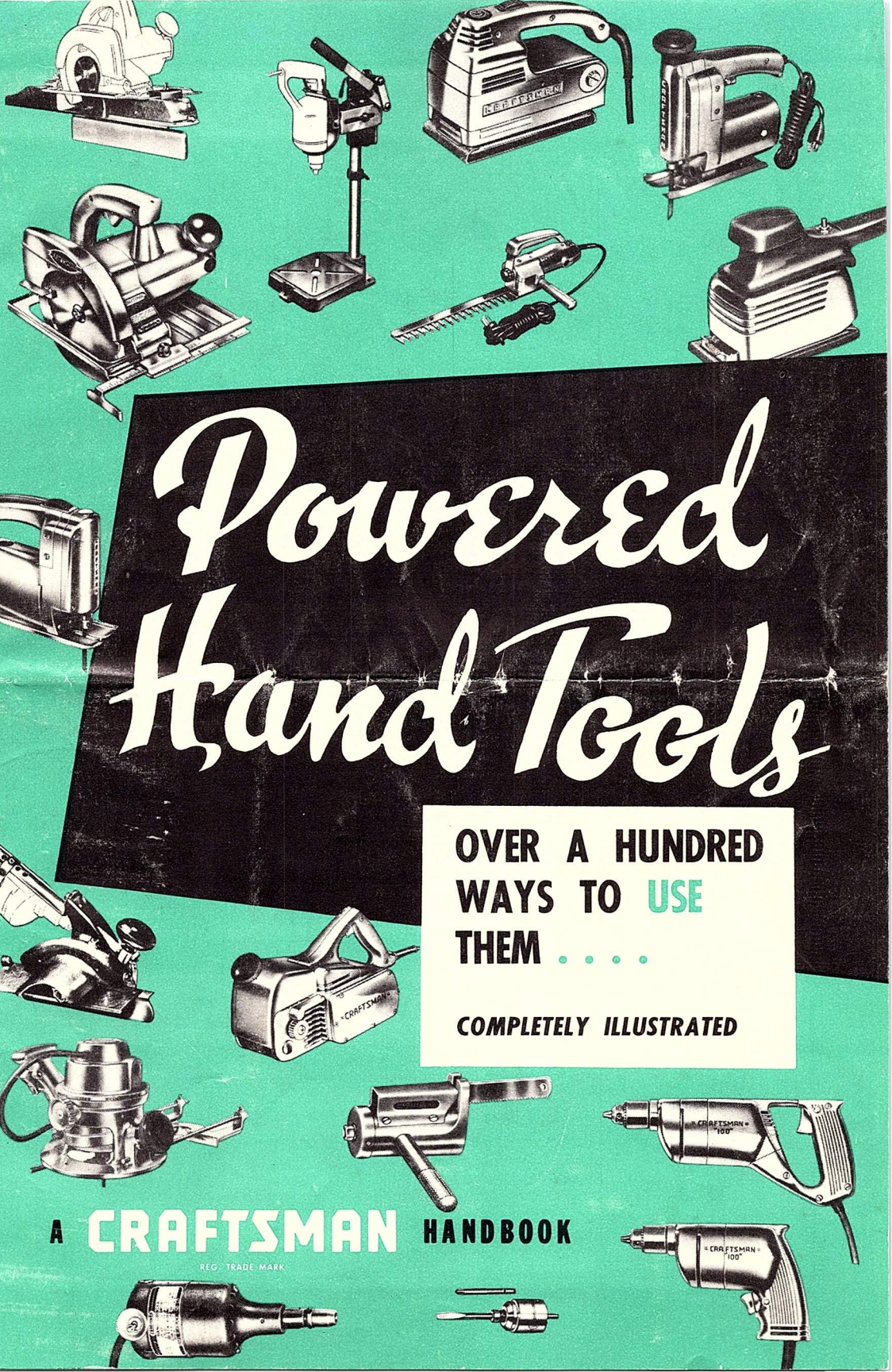


Powered Hand Tools

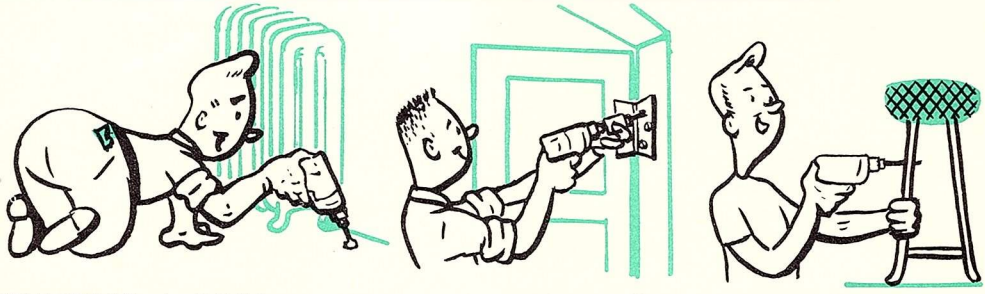
OVER A HUNDRED WAYS TO USE THEM . . . .

COMPLETELY ILLUSTRATED

A CRAFTSMAN HANDBOOK

REG. TRADE MARK

THE ELECTRIC HAND DRILL — Your



SELECTING A DRILL

Your drill will be, quite likely, your most used, most relied upon all-around tool. Consider carefully the kind of work you will expect of it, and select one with sufficient power and built-in ruggedness for the toughest of your jobs. Moreover, if you expect to take full advantage of the drill's many uses — to drive the various attachments available *(p. 5-7)* — a suitable, heavy-duty drill will be well worth the slight extra investment. Drills are rated in several ways:

1) By the size of the drill chuck: 1/4-, 3/8-, 1/2-, 5/8-, or 3/4-in. size — larger sizes usually being for very heavy industrial work. Chuck size determines the largest size hole the drill should be used to drill in metal; but not necessarily the largest it can drill in wood.

2) By the hp (horsepower) developed by the drill at its chuck. Small, light-duty drills may develop as little as 1/8 (or less) hp; a

Most Used, "All-Around" Shop Tool

good, heavy-duty 1/4-in. size develops 1/3 hp; larger sizes develop up to 2/3 (or more) hp. This alone determines how "tough" a job the drill will do!

3) By the rpm (speed) of the chuck. Smaller hp drills necessarily have high-speed, no-load chuck ratings (up to 2500 or 3000 rpm) — depend largely upon this speed (using high-speed cutting bits) to accomplish light-duty drilling tasks; but "bog down" quickly when the going gets tough. Heavier and larger drills have slower chuck speeds — down to 300 rpm; and will "grind away" steadily under even the hardest conditions.

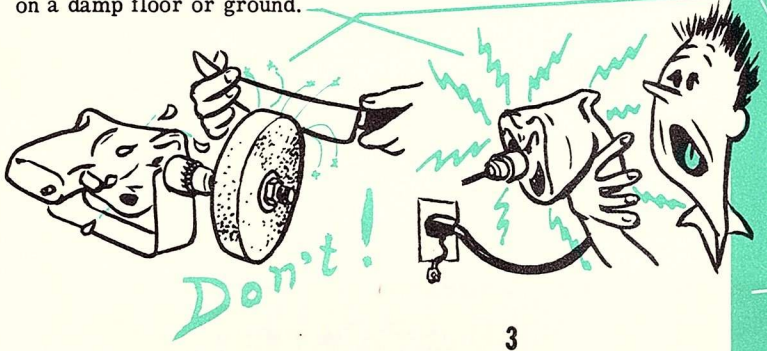
4) By the styling and construction features of the drill. Styling can be important insofar as the weight and balance, usefullness in tight corners, protection of the motor from dust, and similar considerations are concerned. Construction features — such as the type of chuck, gears, or bearings — are very important to the serviceability of a drill.

OPERATION AND CARE

In any use of your drill it is important *not* to overload it so that it slows down to the point of overheating and stalling. Unless it is a continuous operation model, lift it from the work whenever it feels quite warm and let it run at no-load speed — to cool it off (this cools it faster than stopping it). If the bit jams, stop the drill and free the bit . . . *never* try to make the drill break it loose. Keep your drill lubricated according to instructions packed with it; regularly clean it by blowing an air jet through the frame or by shaking out internal dust.

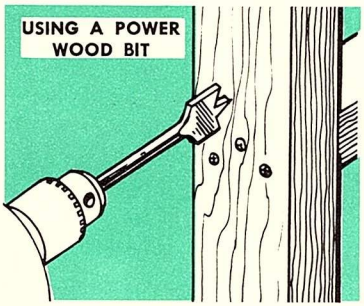
Don't use your drill as a router, or try to elongate a hole by twisting the bit sideways — unless you know the drill has been designed to take side thrusts (light-duty drills and some heavy models aren't). Also, *don't* use it to drive an unbalanced tool (like a fly cutter), too big a tool (like a large grindstone), or a tool which could be dangerous if it should get away from you (like a circular saw blade held in the chuck).

For safety, always use the grounding connection provided, or comply with instructions given — especially if you are on a damp floor or ground.



DRILL OPERATIONS . . .

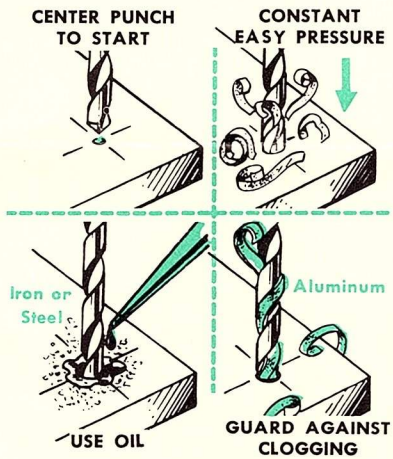
WOOD BORING



Never use an auger bit (screw pointed) — use types which must be pressure fed. Feed with light pressure — both for the sake of a cleaner job and to prevent overloading. Be extra careful when drilling deep holes, especially if the wood is gummy and tends to bind the bit. Properly secure the workpiece, and hold the bit as straight and steady as possible (to obtain a true round hole and to prevent side binding). Clean the chips occasionally by momentarily backing the bit out. To prevent chipping the back it is best to use a backing board — or stop just short of a *break-through* and finish by boring from the back.

Regular metal twist drills are most commonly used for wood boring — but will work even better if the points are ground to sharper (60° to 80°) angles. There are also several types of power wood bits, as illustrated. Screw pointed bits may be used if the screw threads are filed off, to leave the points without threads, so that they will not "hog in."

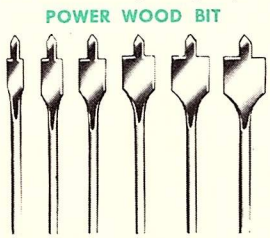
METAL BORING

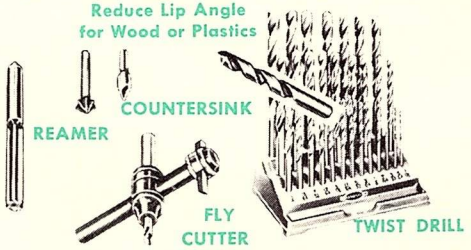


Start hole with a center-punch mark to keep the drill point steady (otherwise it may suddenly side slip and break off). If the point is too big to center in the mark, start the hole with a smaller drill. If the drill does wander off the mark, you can recenter it by using a cape chisel to remove some metal on the side *toward* which the drill should go.

Use firm, steady pressure — relieving the feed regularly to clear the chips and to let the drill pick up lost speed. Generally, the harder the metal, the more pressure you can apply without stalling the tool. Jamming the drill must be guarded against; but it is equally important not to let it run too freely (without really cutting) as this will burn up the cutting edge. Best practice is to observe the chips — and keep them falling at a regular rate which will allow the drill to run without overheating. Soft metals (especially some aluminums) are often gummy — and the chips will glob up in the drill flutes. In such case the drill should be removed and the chips dug out — or they will accumulate and expand to break off the bit. Always ease up for the *break-through* (this is when the bit is most apt to jam).

Metal twist drills are available in three different groups: 1) Fractional sizes; 2) Numbered sizes; 3) Lettered sizes. Each provides a slightly different selection of sizes so that, on the whole, you can readily obtain any size in increments of 1/64 inch, up to 1-1/4 inch. All drills are either: 1) Carbon steel, or 2) High speed. Use high-speed drills for 1000 rpm and over speeds.





Masonry Drills

Carbide or tungsten-carbide tipped drills make short work of boring through cement, tile, brick, marble and the like. For best results alternately press the drill in (to cut), then pull it partially out (to unload the dust). Use as heavy a pressure as necessary to keep the bit steadily "biting" in — without slowing the drill too much.

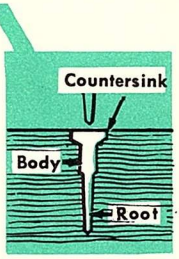
Counterbores, Hones Countersinks, Reamers

All of these tools can be used with a hand drill. As each, however, is intended for a precision operation, good results can be obtained only when you take extra care to brace the drill true and steady. Cutting should be started and finished with the drill running, to avoid marring of the work surface. *Delicate* handling is required.

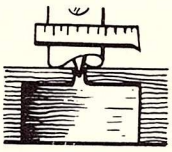
Screw Pilots

Each bit makes the proper size hole for the root, body, and countersink of a common wood screw, in one simple operation. An automatic stop prevents your drilling to deeply — and can be set for flush or sunken head screws. Instructions packaged with the bits show which is just right for each of the most popular wood screws.

Expansive Bits and Hole Saws



These tools present two problems. First, the drill must be held with extreme firmness to prevent wobbling. Second, the point is usually much ahead of the cutting edges — will break through first. Preferably, finish a through hole from the second side, using the *break through* of the point as your centering hole, and using a *delicate* feed.



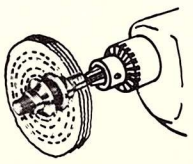
ELECTRIC-DRILL ATTACHMENTS

When attachments are used, the drill loses its original identity and becomes, in effect, merely a conveniently handled motor which both holds and drives the attachment. These attachments increase the drill's versatility immensely — make it truly the most useful tool in your shop.

DRILL ARBOR

Held in the drill chuck, this arbor adapts your drill for many additional operations — both hand held and bench mounted. It holds wire brushes, grinding wheels, buffs, and rubber polishing wheels.

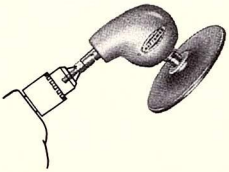
Hand grinding and polishing should be done with the outer part of the wheel only. Don't try to use the entire surface at once. When using a wire brush or buff, keep all the lines on the work flowing in the same direction . . . and don't press hard enough to burn or gouge the work. Take care to protect your eyes from flying bits, when using wire brushes or grinding wheels.



ANGLE DRIVE SET

Sanding, buffing, and polishing are easy with this angle drive and the equipment furnished with it. The angle is just right for fast, comfortable operation, and the tool adds two different speeds to your drill. With a high-speed drill it should be driven from the small end, which cuts the drill's speed in half. When driven from the large end the drill's speed is doubled (for slow speed drills).

Be careful not to overload your drill when using the double-speed position. Keep working pressure light; grip the angle drive tightly to overcome torque. See *page 9* for sanding and polishing tips.



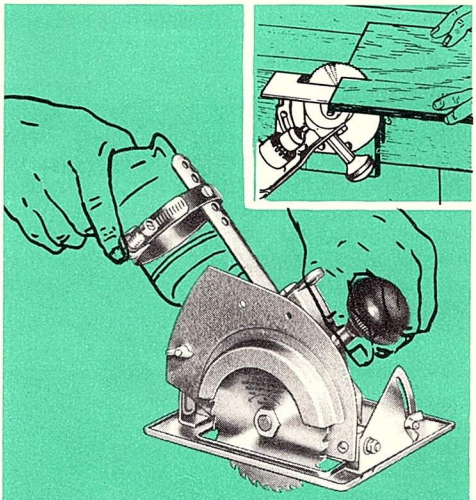
DRILL ATTACHMENTS (Cont.)

CIRCULAR SAW ATTACHMENT

Clean, accurate cutting of woods up to 1-1/2-in. thick can be done with a minimum of effort when your electric drill is equipped with this circular saw attachment. It has depth of cut and bevel adjustments, similar to those of the larger electric hand saws. Most of the big saw operating instructions *(p. 10)* apply, too.

Since it is not intended for heavy-duty or production use, it will give top efficiency only when used properly. Do not force your saw through a cut — particularly on heavier stock. Guide it lightly so that it cuts freely at top speed. Jamming will only slow down your work, and can seriously overload your drill.

Attached to a work bench, this attachment makes an excellent, light-duty bench saw.



SANDER-POLISHER ATTACHMENT

Flat surfaces can be sanded or polished easily with your drill — and this attachment. The sander-polisher is especially excellent for cabinet finishing work and similar operations *(refer to p. 9)*.

Use fine (300 grit) to medium (180 grit) sandpaper for finishing operations. Change to a cloth pad covered with cheesecloth, or a portion of a lambswool polishing bonnet, for the polishing operations. The movement of the tool makes fast, scratch-free finishing work possible, without need for hand rubbing. Coarser grit papers may be used when more material is to be removed.

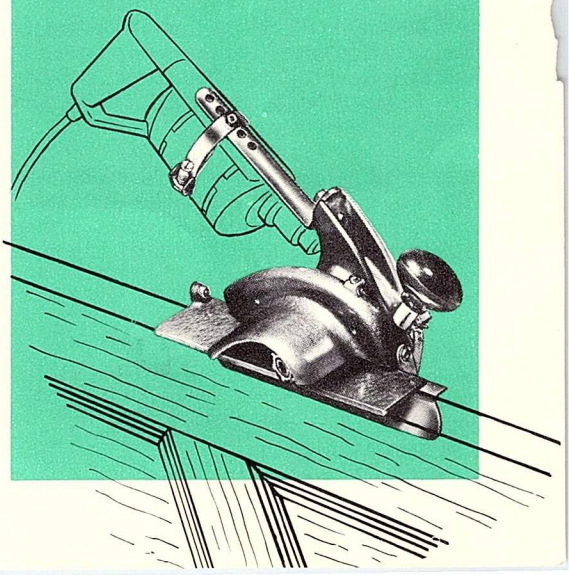
When using the tool, always use light (hand-weight only) pressure. Too much pressure simply reduces the action, and will overload your drill (causing vibration).

PLANER ATTACHMENT

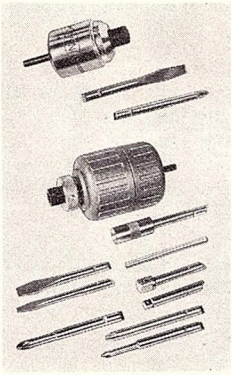
Edge planing of doors, windows, etc. — up to 1-13/16-in. wide — which is generally such a chore with hand equipment, is made easy with this compact attachment. It assures professional results every time — at a fraction of the work of hand planing.

The tool is equipped with an adjustable fence that serves as a guide for making accurate cuts, including miters up to 15° in either direction. Its depth of cut is adjustable up to a maximum of 1/8 in. Once it has been fitted to your drill, it can be removed and remounted with little effort.

To plane an edge wider than the tool, but less than twice as wide, make a pass along one edge then the other edge, rather than cut too deeply on one edge before doing the other.



SCREWDRIVER ATTACHMENT



Your electric drill becomes a power screwdriver when used with either of these handy attachments. Each is a perfect companion to the wood-screw pilot bits for taking all the hard work out of fitting screws. The small attachment illustrated will drive screws, only; but the larger one will both drive and loosen (is equipped with a reversing mechanism).

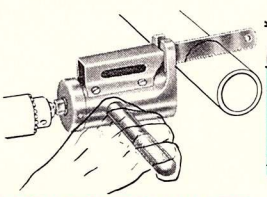
To start, thread the screw in a few turns by hand, then place the bit in the screw slot. Start the drill, then start the attachment to driving. Use just enough feed pressure to keep the bit in the slot. When the screw bottoms out, the bit will stop.

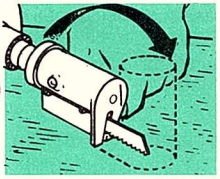
For best results, keep your screwdriver bits properly sharpened — and always use the right size bit to snugly fit into each screw slot. An undersize bit damages both itself and the screw.

ROTO-SAW ATTACHMENT

This tool converts your drill into a useful saw and filing machine for metal, wood, plastics and similar building materials. It uses sections of standard hacksaw blades and small files.

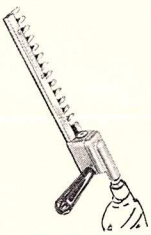
With a stiff blade, rocking the tool upward (to thrust the blade end downward) will start a cut in thin materials (making a starting hole unnecessary). Thin, flexible blades are used for detail scroll saw work. Fast hacksaw work and filing can also be done with the proper blades and files. For tips on sawing, *refer to page 14.*



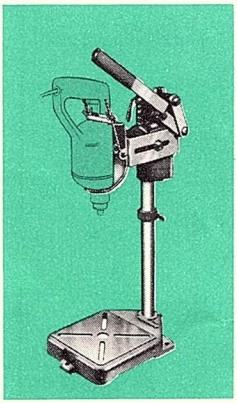


HEDGE-TRIMMER ATTACHMENT

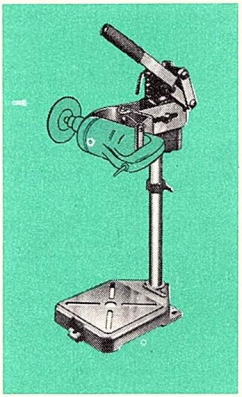
Now you can take most of the tedious labor out of hedge trimming! Once the heavy growth timber has been cut out, this attachment will make fast work of keeping your hedges in shape.



USES OF A DRILL STAND



A drill stand like the one illustrated will eanble you to use your electric hand drill for fast, accurate drill press work. It converts the drill into a steady, powerful bench-type press for precision operations of all kinds. Many of the attachments shown here *(on pages 5 through 7)* can also be used to better advantage, when your drill is set up in a stand to free both hands for other duties.



The compound handle leverage provided by this stand eases the drilling of hard woods and metals; and a built-in compression spring pulls the drill bit out of the work when this handle is released. An adjustable collar on the column allows you to drill to any predetermined depth.

The stand head can be rotated to one side to position the drill horizontally for buffing, grinding and similar operations. However, do not try to drive a wheel larger than the drill will handle without appreciable loss of speed.

PORTABLE ELECTRIC SANDERS

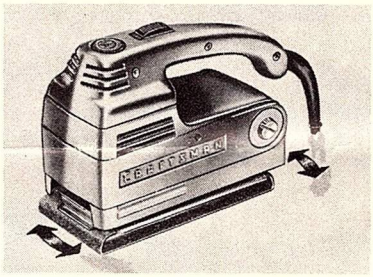
SELECTING A SANDER

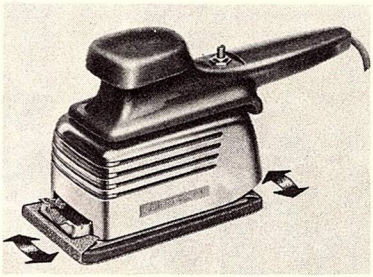
Sanding and polishing are very important jobs in any woodworking project. With the proper sander you can save hours of difficult hand work, can "smooth out" minor cutting and fitting errors by sanding finished joints to perfection — and can obtain the high-gloss finishes so often desirable.

Although the grit of sandpaper (coarse, medium or fine) is the chief factor in determining the type of work (rough or finish sanding, etc.) that a sander will do, the weight, size, power, and type of motion of the sander, itself, are also quite important. Continuous motion sanders — like the straight-line belt or rotary disc sanders — usually have a violent action . . . excellent for fast, rough work, but too rapid for fine finishing and sanding around edges, corners and the like, or on delicate plywoods. Sanders which have limited, more delicate and precise motions are preferable for such jobs. Then, too, don't judge a sander by the amount of dust it kicks up. Judge, instead, by the amount of wood it actually removes . . . by the ease with which you can handle it . . . and by the smoothness of the finished work it will produce.

Each type of sander has certain advantages. Every shop should have at least two types: One for rough work and another for fine finishing work and for sanding between coats of paint, varnish, etc.

FINISHING-TYPE SANDERS





Available in light (cabinet-finishing) and heavy (continuous-duty) models, these sanders are actuated by a reciprocating-type motor which delivers 14,400 double-arc strokes per minute to the platen. Enough "scrubbing" action to quickly produce a glass-smooth sanded finish; or (with coarser paper) to smooth out the roughness of sawed lumber easily and effectively!

Because the sander (either size) is relatively lightweight, and will not "walk away from you," it is ideal for vertical and overhead sanding. It requires no pressure; you simply guide it over the surface . . . and let it do the work. Cannot burn, gouge or mar the finest surface. Fitted with a polishing pad, it is excellent for waxing and polishing of your rarest wood pieces, and for wet or dry finish sanding between coats of paint, lacquer or varnish. Can also be used for metal, glass and plastic finishing, for etching designs on these materials — or as a bench-mounted (in a vise) stationary sander.

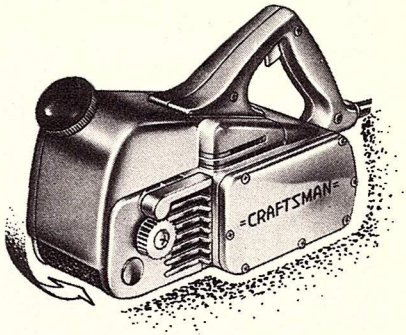
ROTARY-TYPE SANDERS

This type is excellent for fast, rough sanding, car polishing, metal burnishing, and the like. When sanding, never attempt to use the entire paper surface at once — or the sander will bounce and gouge the work. Use only the outer third of the circular sanding sheet, holding it as flat to the work as you can without touching more. Hold sander firmly in both hands — and keep it moving steadily (to avoid scratching or gouging), preferably in the direction toward the disc center. Be extra cautious at work edges to avoid rounding them. Use long, sweeping strokes whenever possible.

CONTINUOUS-BELT SANDERS

Designed for heavy-duty construction work, these sanders are intended primarily for rough to fine sanding of wood already assembled in place on the job. Especially excellent for finishing hardwood floors, solid *(not* veneered) wood walls, large benches, and the like. *Not for polishing.* May be used as a bench sander (mounted in a vise) — and for sharpening tools.

For best results, grip the sander firmly with both hands . . . and move it steadily in a straight line with the grain. Don't allow it to droop over an edge; use caution when rounding edges or corners (the tool will cut small areas very rapidly).



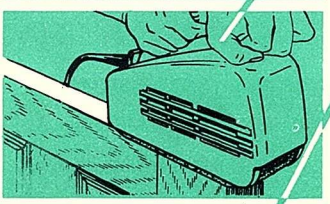
TIPS *ON SANDING*

Don't ruin scissors or shears cutting sandpaper. Crease and tear it along a sharp edge, as illustrated.

If an edge is narrow, clamp the work between two boards to provide a flat surface to sand against. This will prevent splintering when sanding end grain, and will produce square (instead of rounded) corners.

Always start with the finest grit paper that will do your job. Coarser papers necessarily scratch, requiring the use of finer papers to finish up with a real smooth job.

Sand with the grain, using a "skimming" motion (rather than a "digging" one) to guide the sander.



Come up to edges squarely without allowing the tool to overhang. If purposely rounding an edge, support some of the sander weight with your hands to prevent cutting too fast. Better take many light passes than one that is too heavy!

To remove wood fuzz, dampen, then dry the surface — then sand. You may have to repeat this several times on some softwoods.

To sand finish paint, varnish, etc. use a waterproof paper and soapy water, made with a mild soap, and as sudsless as possible. Sand without pressure until satiny smooth. Wipe dry with a lintless rag, apply next coat, and repeat.

Always use an *open*-coated paper to remove old paint, selecting grit coarsness to correspond with the thickness and/or gumminess of the paint.

TYPICAL OPEN-COATED GRIT SIZES

CLOSED COAT

SANDPAPERS — Types and Uses

ABRASIVES: There are 5 principal types:

ALUMINUM OXIDE. Manufactured with very long lasting, keen cutting edges and points. Brown in color. Excellent for hardwoods and high tensile metals (steels, tough bronze, etc.). Best all-purpose abrasive.

SILICON CARBIDE. Hardest and sharpest manufactured abrasive. Bluish black. Best for low tensile metals (cast iron, aluminum, brass, copper) and for glass and plastics.

**GARNET.* Natural. Reddish brown. Used for fast wood-block hand sanding.

**FLINT.* Natural. Grayish white. Used for hand sanding of wood-work.

EMERY. Natural. Black. Used extensively for polishing metal.

*Garnet and flint do not give best results on portable electric sanders.

GRAIN SIZE AND COATING: Abrasive particles are graded according to the mesh of the wire screen through which the grains will pass. This grading is expressed in grain size (*Grits*) or by symbols. The coarser grits will cut bigger chips — are for rougher work. While 600 is the finest grain generally available, grits up to 1000 have been produced. The grains may be distributed on the paper in a *Closed Coat* (completely covering paper) or an *Open Coat* (spaces between grains). Open coats are best for most purposes as the spaces allow the chips to fall away instead of clogging the paper. *Electrocoating* is a process whereby the grains are all made to stand on end (to be sharper), instead of lying helter-skelter (as they do when *Gravity* coating is used).

STANDARD KINDS: *Bonding Agent, Backing* (paper, cloth, etc.), and *Finishing* also determine usefulness of a paper. For practical purposes these factors are standardized, and the resulting papers are called:

FINISHING PAPER. Soft, flexible paper for sanding sealers and finishes.

CABINET PAPER. Heavier, durable paper for rough wood sanding.

WATERPROOF PAPER. Special soft paper for wet sanding of finishes.

—Papers Rated In Grits—			Symbol	Symbol Papers	
Al. Ox.	SilCa	Garn	Equiv.	Flint	Emery
	600		12/0		
500	500		11/0		
400	400		10/0		
	360				
320	320		910		
280	280	280	8/0		
240	240	240	7/0		
220	220	220	6/0	4/0	
				3/0	
180	180	180	5/0		3/0
150	150	150	4/0	2/0	2/0
120	120	120	3/0		1/0
				1/0	
100	100	100	2/0		1/2
				1/2	
80	80	80	1/0		1
				1	
60	60	60	1/2		1-1/2
50	50	50	1	1-1/2	2
				2	2-1/2
40	40	40	1-1/2		
				2-1/2	
36	36	36	2		3
30	30	30	2-1/2	3	
24	24	24	3		
20	20	20	3-1/2		
16	16		4		
	12		4-1/2		

OTHERS. Metal Cloth and Emery (for metal work) Molding Cloth (for irregular shapes) Floor Paper (stiff, very heavy); Buffing and Snuffing Papers (for leather), Abrasive Cloth or Paper (for plastics, glass or hard leather) . . . etc.

Using Your Sander on Metal, Glass, Plastics

METAL FINISHING

Light clean-up of all kinds of metals (such as knocking off flash, weld finishing, deburring, surfacing fills, and breaking hole edges) can be done with aluminum oxide (for high tensile metals) or silcon carbide (for low tensile metals) sheets in 50 to 80 grit. Rust removal and polishing is best done with emery sheets — Nos. 1 to 3/0; while special effects (to simulate frosting or peening, or an extremely high polish) can be accomplished with metal cloth sheets in grits from 50 to 500. Very high polishes can be achieved on all metal surfaces which are reasonably smooth at the start.

GLASS FINISHING

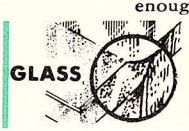
Waterproof silcon carbide sheets, in grits from 80 to 180, are used (with soapy water) for edging and beveling — also for frosting. Surface blemishes may be rubbed out by using the same paper in grits up to 600. Be careful not to generate too much heat at any one spot.

PLASTIC FINISHING

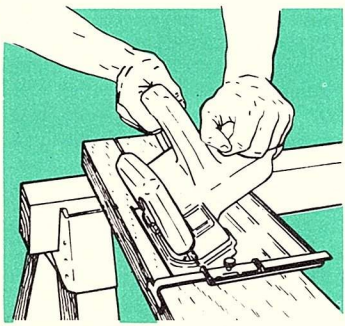
Generally, plastics may be sanded the same as glass. For clear plastics, however, use an outing flannel pad (on Sander platen) and Simonize (or a similar gritless cleaner) to remove scratches after sanding. Then polish with tallow only on the pad. Because the surfaces of clear plastics are usually soft and affected by heat, take extra care to avoid rubbing dust or lint into the surface, and to prevent overheating.

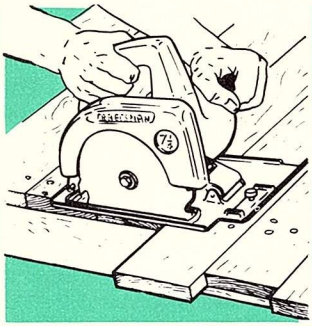
ETCHING DESIGNS ON METAL, GLASS, PLASTICS

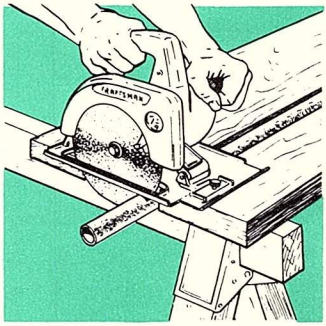
Use masking tape to form a stencil and valve-grinding compound, mixed with light oil, as the abrasive. Apply tape to surface, leaving openings for the design — then coat open areas with the abrasive. Place a sheet of thin metal over the abrasive and agitate this with your Sander. Tape will last long enough to do the job.



ELECTRIC HAND SAWS







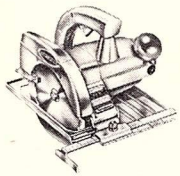
SELECTING A HAND SAW

Used primarily for on-the-job sawing, your electric hand saw will do the job *10 times faster than hand sawing*. It may be used for pre-sizing of lumber, or for trimming off the uneven ends of boards and forms already nailed in place (thus eliminating much measuring and fitting).

A saw is rated principally by the size of its blade — which determines its maximum depth of cut. A 6-1/2-in. blade will normally cut a 2x4 at 90°; larger blades make proportionally bigger cuts. But blade size alone does not make a saw useful — it takes power to do the rough work, and precision adjustments to do it right. A good saw develops at least 3/4 hp — and is designed for *safe* easy cutting of straight (guided) lines and accurate bevels . . . and will cut to the desired depth.

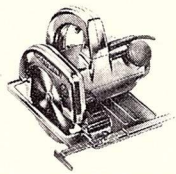
. . . TYPICAL CRAFTSMAN PERFECTION

Light, sturdy aluminum die-cast frame. Direct drive gear train. Firm, steel baseplate with front graduated to scale for adjustment of sliding steel rip guide. Bevel adjustment from 90° to 45°. Telescoping blade guard for making blind cuts. Built in sawdust blower. Ball bearings; glass and formex insulation. Blade at right (away from operator); handy in-handle squeeze ON switch.



POPULAR 6-1/2-IN. Rugged G.E. motor develops 1 hp — 4600 rpm no-load speed; 2850 rpm full-load speed. With chisel-tooth combination blade. For 110-120 V, 25-60 cycle AC or DC.

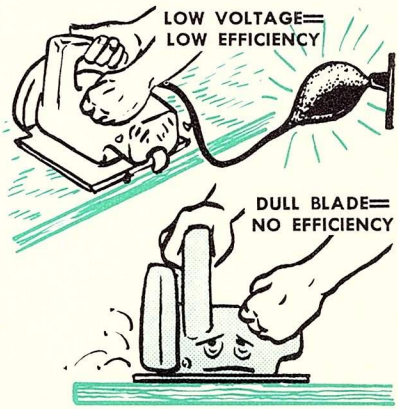
HEAVY-DUTY 7-1/4-IN. Extra powerful, full 1 hp G.E. motor — 4400 rpm no-load speed; 2900 rpm full-load speed. With chisel-tooth combination blade. For 110-120 V, 25-60 cycle AC or DC.



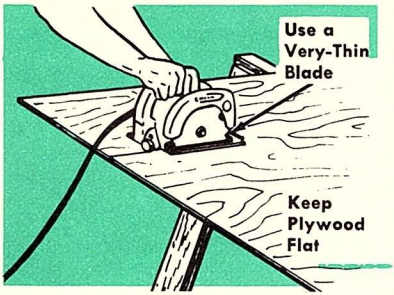
OPERATION AND CARE

Connect your saw with a 110-120 V a-c or d-c source. Should you use an extension, have it 12 gage or larger, if up to 100 feet; 10 gage or larger, if up to 150 feet. Too small an extension will result in too low a voltage — can overheat and burn out your saw motor. Also, use the ground connection provided on your saw plug — especially when working in a damp place.

Lubricate your saw regularly, per instructions packaged with it. Keep the air passages open to assure proper cooling. Clean them with an air jet, if necessary. Above all, keep the blade sharp, clean, and properly set.



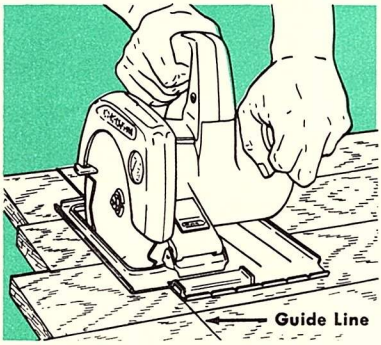
HAND-SAW OPERATIONS . . .



GENERAL

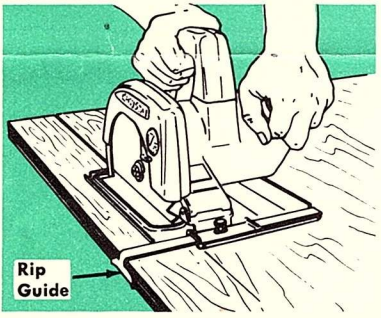
Before pressing the switch, rest the front of the base plate on the work — then squeeze the switch and let the blade come up to full speed before starting the cut. Allow the blade to cut its way through the work without forcing. Forcing only results in inaccurate work and overloading of the motor. If the blade slows, back it out and re-start. If the motor stalls, do not release the switch — back out the blade and let it run free.

For cutting plywood with a minimum of splintering use a very thin (.030-in. gage) blade; and for sawing used lumber, preferably use a nail-cutting blade. A carbide-tipped blade is the finest for making fast, smooth cross-grain or rip cuts.



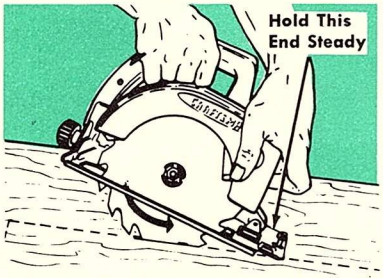
CROSSCUTTING

The flat inset guide edge of the baseplate is exactly in line with the saw blade, when the blade is set at 45° or 90°. Use this edge as a guide — and follow a line drawn on the work, the same as with a hand saw. At other angles, the blade will be up to 3/64 inch to the right of the guide edge. The graduated scale makes it easy to make cuts at odd bevel angles. Simply offset your guide line on the work to the left by the distance from the blade edge to any convenient mark on the scale.



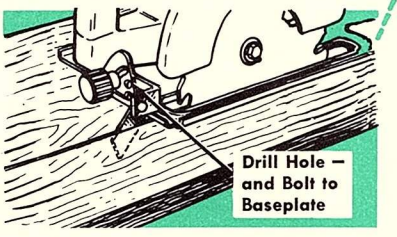
RIPPING

Either use the procedure above (following a line) or use the rip guide on your saw. Set the desired cut on the graduated scale of this guide, using the guide edge of the baseplate for an index. The right edge of the work must be true for the rip guide to follow it. Be careful to prevent the blade from binding in the kerf at the end of a cut.



POCKET CUTTING

Pocket cuts are easy with your electric hand saw. Swing the guard out of the way and rest the front edge of the baseplate on the work. Start the saw and slowly lower the blade into the stock. After making a cut, clean out the corners with a hand-saw. Be sure to release the switch and let the blade stop before lifting the saw out.

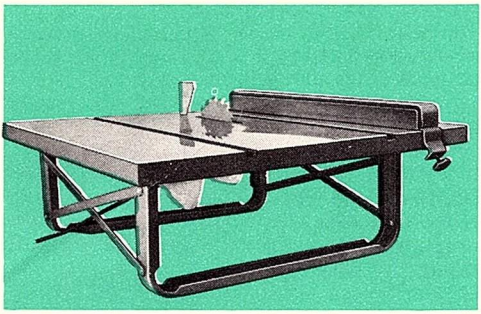


FOR PRECISION STRAIGHT-LINE CUTTING

If your saw has any tendency to wobble slightly so that it is difficult to follow an exact straight line, this tendency can be eliminated by use of a kerf-follower guide. Use a piece of stiff metal wide enough to slide snuggly (but not bind) in the kerf. Shape it so you can fasten it to the rear of the baseplate, with the downward projecting point *exactly* in line with your saw blade (as illustrated).

ELECTRIC HAND-SAW ACCESSORIES

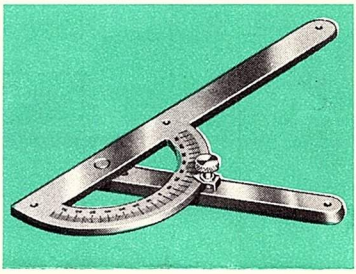
A BENCH-SAW TABLE TOP



This saw table top converts your electric hand saw into a useful bench saw. Solidly built for professional use — as well as serious hobby work — it has a large work surface with two miter gage grooves. The table top comes with a rip fence and a splitter, and will take most of the accessories (miter gage, saw guard, etc.) that are made for regular bench saws.

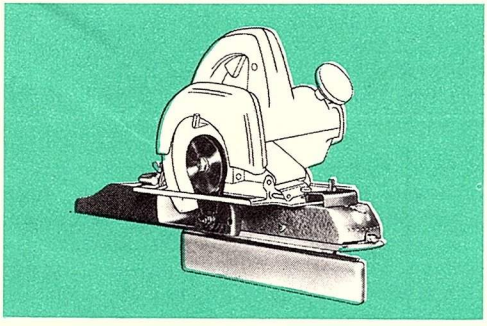
For detailed information on uses of a bench saw we recommend the Craftsman Handbook "The Circular Saw," Cat. No. 9-2926.

A PORTABLE SAW GUIDE



Accurate angular cuts can be made rapidly with this portable saw guide. Butt the slide bar against an edge of the work, set the guide to your desired line of cutting and lock it — then guide your saw along the straight edge of the guide. The guide can be set for any angle from 0° to 75°, left or right. It is especially useful for making compound miters in conjunction with the bevel adjustment on the saw. It is also useful as a regular protractor on jobs requiring accurate angle measurement.

ELECTRIC HAND-SAW PLANER ATTACHMENT



Designed to produce professional type planing work, this precision attachment will enable you to do accurate straight or bevel planing — on the job. Makes cuts up to 1/8-inch deep in a single pass; and the 2-1/2-inch width of cut will handle the edges of most common lumber. Stock up to 5 inches wide can be handily planed in only two passes. The fence is removable for surface planing of wider stock. Once installed it can be quickly removed and reinstalled. Operates just as easily as any hand planer — but now you have power!

TIPS ON USING YOUR HAND SAW

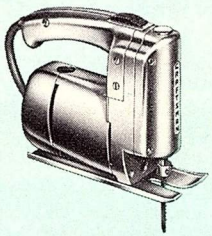
For a cleaner, faster cut, keep the saw moving *steadily* forward, at its *optimum cutting speed* — that is, as fast as it can cut without losing too much speed. You can "hear" the optimum cutting speed with a little practice. Hold your saw with both hands whenever possible and, if using the rip guide, bear just enough to the left to keep the guide firmly against the right (guiding) edge of the work.

When making a cut longer than your arms can reach, either walk with the saw — or stop the saw, pull it back in the kerf a few inches, take a new position, then resume.

When using a cutoff wheel (in place of the saw blade) take extra pains to hold the saw true and steady on the cutting line — to avoid breaking the cutoff wheel.

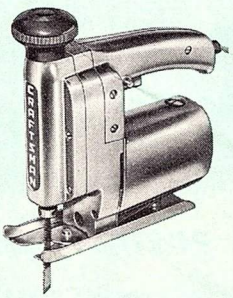
ELECTRIC SABRE SAW

A POWERED JIG SAW, HACK SAW AND SMALL BAND SAW . . . ALL IN ONE

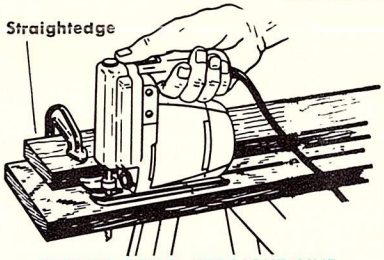


This lightweight, easy-to-handle saw of *many uses* easily cuts straight or curved lines and intricate designs in wood, plastic, soft metals, composition board, or sheet metal. It can be taken right to the work for such jobs as cutting blind holes for electrical outlet boxes, cutting duct-work openings for registers, trimming pipes and conduit to length, etc. It is especially useful for sawing plywood as the small blade teeth and rapid action serve to produce smooth-cut edges.

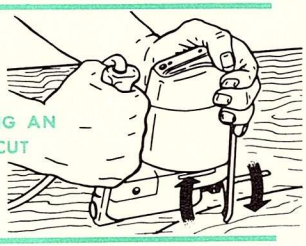
The tool operates exactly like a powered jig saw . . . but has all the advantages of portability to greatly increase its usefullness



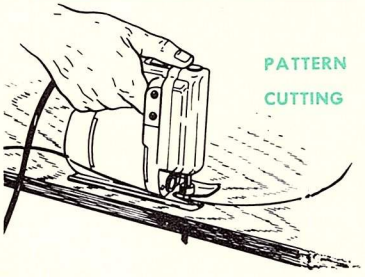
TYPICAL OPERATIONS



CUTTING LONG, STRAIGHT LINE



STARTING AN INSIDE CUT



PATTERN CUTTING

RIPPING AND CROSSCUTTING WOOD

For these operations, have the saw blade teeth facing forward *(away from motor end)* and pointing upward (the cutting action should be on the *up* stroke). The saw then cuts forward — making it easy for you to closely follow the most intricate guide line (by observing the line through the opening between the feet at the front of the baseplate).

Place the front feet on the edge of your workpiece, aligning the saw blade with your guide line. Start the saw, and advance it along the guide line at a steady pace, not fast enough to slow the motor appreciably — but fast enough to keep the blade always cutting new wood (not just moving up and down in a place already cut). Hold the baseplate firmly down on the work. Stop the saw before removing it.

If you have a long straight line to cut, use a straight-edge guide (clamped or nailed to the work) to guide one edge of the baseplate.

INSIDE CUTS

Inside cuts can be started at a bored hole; or can be started with your saw. Rock the saw forward so that it rests, on the work, on its front feet — with the blade end just above your guide line. Start the saw and slowly rock it back to let the blade cut its way down through the work — until the baseplate is flat on the surface. Then finish the cut in the usual manner.

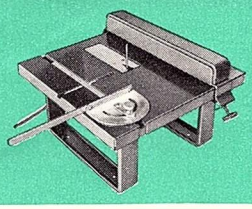
METAL CUTTING

Sheet metal cutting is much the same as above — except that inside cuts should be started at a hole. For sawing off tubing, conduit and similar narrow objects, reverse the blade *(teeth facing backward but still pointing up)* — so that you can rest the center of the baseplate on the work, and pull the saw toward you to make the cut.

FILING

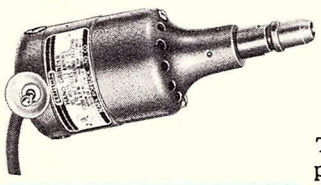
Small files, the ends of which will (or can be ground to) fit the blade lock, can be used to big advantage for filing in hard-to-get-at places, removing burrs, etc.

SABRE-SAW TABLE TOP

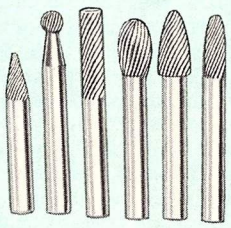


This accessory converts your sabre saw into a power bench jig saw. Equipped with a rip fence and a miter gage (which can be used to cut perfect circles), it is useful for hundreds of jobs. The miter gage also embraces a saw guide — is useful for free use of the saw when cutting miters.

ROTARY ELECTRIC CUTTER-GRINDERS



GRINDING TOOLS

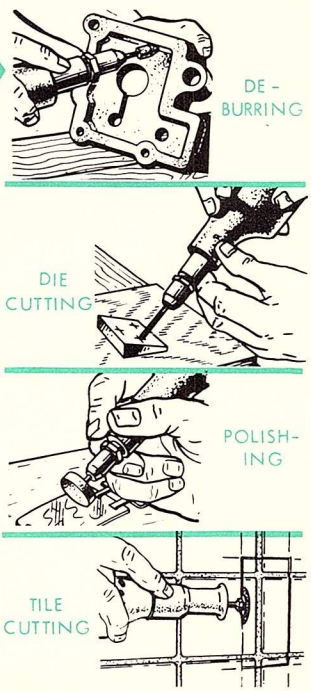


CUTTING TOOLS

A FEW OF THE MANY USEFUL OPERATIONS YOU CAN DO

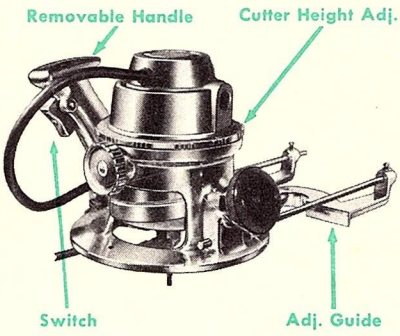
This compact, powerful tool packs a wealth of usefulness — for professional tool and die makers and home "handymen," alike. The 110-120 V, 25-60 cycle AC or DC motor develops a full 1/14 hp — operates at 13,000 rpm. Positive locking chuck takes 3/32-, 1/8- and 1/4-in. shank tools.

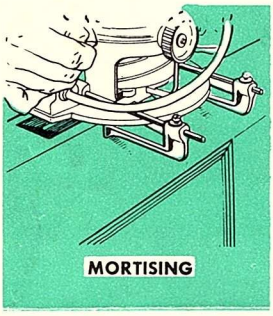
With the wide variety of cutters and grinding wheels available, you can carve, rout, sand, mill, sharpen and grind — in wood, plastic, glass and metals (except hardened steel). Simply grasp the tool in one hand, and maneuver it much like you would a pencil — using enough pressure for the job, without appreciably slowing the motor.



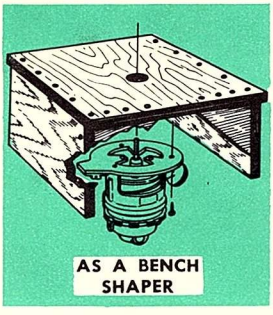
THE ROUTER

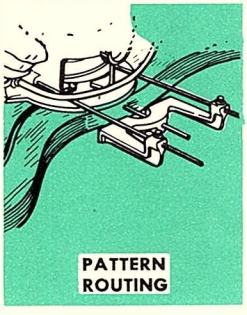
Routers were originally intended for mortising and grooving — but a compact, light-weight router (such as illustrated) has many "bonus" uses which make it a very versatile workshop tool. The router shown is designed for mortising door locks, rabbeting, dovetail grooving, tenon grooving, edge shaping, preparing inlays, pattern and freehand wood carving and shaping — and allied jobs. It is sturdy enough to be mounted under a table top, for use as a shaper. The novel, simple device for raising or lowering the cutter, together with the in-handle switch, extra guide knob, and adjustable edge guide, all make this an easily handled tool for production or general shop use.




MORTISING


FREEHAND CARVING


AS A BENCH SHAPER

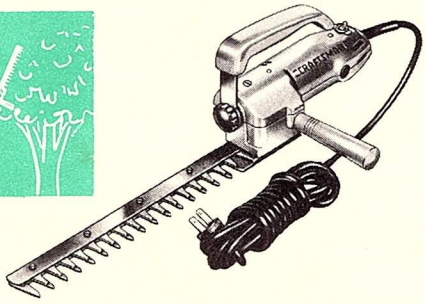

PATTERN ROUTING

For all straight-line work use the adjustable guide to press against a straight side of the workpiece, or a straight edge fastened in place. Do not take too deep a cut (keep it shallow enough not to slow the tool appreciably) — better take several passes, deepening the cut each time, if necessary. Press the guide firmly against the guiding edge — and move tool steadily to your right, if you have the guide in front (as shown); or vice versa, if you place the guide in back.

For contour work, use a rounded end dowel secured in the center boss of the guide (as shown), and press this against your template edge to follow the curves. Remove the guide for freehand carving.

Make a table to convert your router into a shaper, as illustrated. Use 5/8-inch plywood for the top and 1-1/2-inch lumber for the sides — then bolt the feet to a bench top of convenient height. Provide a 1-inch hole in the table top for the shaper cutters. Use a regular shaper fence, or a homemade one.

ELECTRIC HEDGE TRIMMER



This perfectly balanced, easy to use, and powerful hedge trimmer makes short work of your hedge and shrubbery trimming and lawn edging chores. The special three-position handle selector provides a comfortable grip for both right- and left-hand operation. With the auxiliary handle bracket (furnished) it can be used as a long-handled tool, when this is more convenient. It will quickly trim through any hedge or shrub branch that will enter between the guide teeth.